PATENT ABSTRACTS OF JAPAN

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(54) METHOD AND SYSTEM FOR DYNAMIC APPLICATION START ON WORKFLOW SYSTEM

(57)Abstract:
PROBLEM TO BE SOLVED: To easily modify transaction applications which are performed accompanying operations which are carried out in sequence according to transaction process definitions and to dynamically start a transaction AP accompanying a following operation according to the execution result of a transaction AP carried out accompanying a precedent operation.
SOLUTION: In a start application table 25, the correspondence between operations and transaction APs is set. An operation execution information table 24 contains the

execution results of transaction APS which are performed as to each operation as succession information. AN AP start control part 12 of a workflow server 10 determines a transaction AP to be started by referring to the start application table 25 when an operation is performed. Further, an AP start control part 12 decides whether or not the transaction AP of a following operation is performed according to the succession information of a precedent operation by referring to the operation execution information table 24.

* NOTICES *

CLAIMS

[Claim(s)]
[Claim 1]In a workflow management method which starts an operating application program which faces carrying out sequential execution of the work required about each application according to a business process definition, and supports execution of this work, It is set as a memory measure so that matching information of this work and an identifier of an operating application program may be made to become independent of this business process definition and can be updated, A dynamic application starting method determining an operating application program which starts with reference to this matching information on this memory measure when doing this work.
[Claim 2]It is set as a memory measure by making into taking over information an executed result of this operating application program executed about this work, The dynamic application starting method according to claim 1 judging whether this operating application program corresponding to work of this specification which follows with reference to this taking over information on preceding work which faced doing specific work and was performed just before that is executed.
[Claim 3]A work flow system which starts an operating application program which faces carrying out sequential execution of the work required about each application according to a business process definition, and supports execution of this work,

comprising:

A memory measure set up so that matching information of this work and an identifier of an operating application program which starts can be updated.

A means to determine an operating application program which starts with reference to this matching information on this memory measure when doing this work.

[Claim 4]The work flow system comprising according to claim 3:

The 2nd memory measure that sets up an executed result of this operating application program executed about this work as taking over information.

A means to judge whether this operating application program corresponding to work of this specification which follows with reference to this taking over information on preceding work which faced doing specific work and was performed just before that is executed.

[Claim 5]Are a storage to store a program in which computer reading is possible, and this program, It faces carrying out sequential execution of the work required about each application according to a business process definition, It is a workflow management program which starts an operating application program which supports execution of this work, Matching information of this work set up on a memory measure so that it might be made to become independent of this business process definition and could update, and an identifier of an operating application program is referred to, A storage which stores a program having a program means which determines an operating application program which starts when doing this work.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the method of starting dynamically the operating application program which supports especially execution of each work with respect to the work flow system which does work one by one according to a business process definition.

[0002]

[Description of the Prior Art]The conventional work flow system defines the business process beforehand, and advances business according to the definition. That is, each operating step which constitutes a business process is defined as an activity, and sequential execution of each activity is carried out according to a business process definition. Each activity is accompanied by at least one work or a work item, and job

application supports execution of work. The job application which supports the work and work in an activity and an activity is described during the business process definition.

[0003]The art indicated, for example to JP,9-81637,A is related as this kind of art. The gazette indicates the work flow system which enables dynamically change of the combination of the process (activity) of constituting a business process.

[0004]

[Problem(s) to be Solved by the Invention]Since a job application name is also changed in the usual case when the job application performed with each work is changed in the conventional work flow system or it performs another job application temporarily, There was a problem that description of a business process definition had to be changed by it. Although it is possible to change a business process definition, a business process definition is a kind of program, and it becomes work troublesome for a person in charge like correction of the usual program to search for the target activity and work from the inside, and to change a job application name.

[0005]The purpose of this invention is to enable easily change of the job application performed with work.

[0006]Other purposes of this invention are to start dynamically the job application accompanying the work which follows by the executed result of the job application performed with the work to precede.

[0007]

[Means for Solving the Problem]This invention is set as a memory measure so that matching information of work and an identifier of an operating application program which starts may be made to become independent of a business process definition and can be updated, It is characterized by a dynamic application starting method and a system which determine an operating application program which starts with reference to matching information on the memory measure when doing each work.

[0008]This invention is set as a memory measure by making into taking over information an executed result of an operating application program executed about each work, It is characterized by a dynamic application starting method and a system which judge whether an operating application program corresponding to work which follows with reference to taking over information on preceding work which faced doing specific work and was performed just before that is executed.

[0009]A term of a "business process" used on these specifications, "a business process definition", an "activity", and "work", It is based on "WorkflowManagement Coalition Terminology & Glossary" of Workflow Management Coalition (WFMC), and June 96. "Work" of this specification is equivalent to a work or a work item of WFMC.

[0010]

[Embodiment of the Invention]Hereafter, the embodiment of this invention is described in detail with reference to drawings.

[0011]Drawing 1 is an overall lineblock diagram of the work flow system of this embodiment. A system comprises the workflow server 10, the database server 20, the application (AP) servers 30 and 40, the client 60, and the networks 50 that connect between these devices, such as LAN and WAN.

[0012]The workflow server 10 is a server computer and the memory storage connected to the processing unit stores the workflow management table 14. The workflow management table 14 stores the information about the execution sequence of each work in a workflow item, work, and a business process. The memory of the processing unit of the workflow server 10 stores each program of the workflow execution control part 11, the application (AP) start control part 12, the object communication part 13, and the demand accepting part 15, and is performed by a processing unit. According to the business process definition which is not illustrated, one by one, each application controls the workflow execution control part 11 so that a work process is carried out. The application (AP) start control part 12 is a program which calls the application program needed by each work with reference to the workflow management table 14. The demand accepting part 15 is a program which performs processing which received the demand from the client 60 via the network 50, called the workflow execution control part 11 etc., and was demanded. The object communication part 13 is a program which controls communication between the objects through the network 50. Programs, such as the workflow execution control part 11, the application (AP) start control part 12, and the demand accepting part 15, It is positioned as an object in distributed object environment, and other objects are called, a message is passed, processing is performed, and the processing result is received in the form of a message. The object communication part 13 performs the conversion process of a logical identifier child and a physical address, such as acquiring the network address of a server where the operating AP exists from a job application name, etc.

[0013]The database server 20 is a server computer and the memory storage connected to the processing unit stores the work execution information starting AP table 24 and 25. The work execution information table 24 stores the taking over information which is an executed result of the work for every application and every work. The starting AP table 25 stores correspondence with the name of the application program executed by work and its work. The memory of the processing unit of the database server 20 stores each program of the object communication part 21, the database (DB) access part 22, and the database management system (DBMS) 23, and is performed by a processing unit. DB access part 22 is an object which is called from AP start control part 12 and the demand accepting part 15, and accesses the work execution information starting AP table 24 and 25 via DBMS23. The object communication part 21 is a program which controls communication between objects like the object communication part 13.

[0014]the application (AP) servers 30 and 40 are server computers —— the memory of each processing unit —— job application (AP) —— 32 and 42 are stored and it performs with each processing unit. Operating AP 32 and 42 is an object which is called from AP start control part 12, performs processing accompanying each work, communicating with the client 60, and returns the processing result to AP start control part 12. The object communication parts 31 and 41 are programs which control communication between objects like the object communication part 13.

[0015]The clients 60 are computers, such as a personal computer, and a worker's client 60 and the client 60 which an operations manager uses are installed. The former client 60 transmits a work execution demand to the workflow server 10, and it does work, communicating with operating AP 32 and 42. The latter client 60 accesses the work execution information starting AP table 24 and 25 of the database server 20 via the workflow server 10, and maintains these tables.

[0016]The storage which stores the program of AP start control part 12 at least is formed, . [whether it reads into the memory of the workflow server 10 via the drive connected to the processing unit of the workflow server 10, and] Or it is possible to transmit to the processing unit of the workflow server 10 via the drive and other computers which are connected to other computers, and a network, and to perform with the processing unit.

[0017]Drawing 2 is a figure showing the data configuration of the workflow management table 14. Each entry of the workflow management table 14 has application name 64 and application ID65, present work ID66, and preceding work ID67. the user corresponding to [application ID65 is an identifier of a meaning assigned automatically, when an application is supplied to a work flow system, and] application ID65 in the application name 64 —— it is a FRIENDLY name. Present work ID66 is an identifier of the work about the application concerned. Preceding work ID67 is preceded with present work ID66, and is an identifier of the last work. One or more preceding work ID67 can be set up about one present work ID66. One or more present work ID66 can be set up about one preceding work ID67. Work serves as a unit which processes by starting one operating AP. Generally it is possible about one activity to do one or more work, and work can be distinguished by the identifier of an activity, and the identifier of work in that case. Here, one work has distinguished work by the identifier of work as a thing corresponding to one activity.

[0018]Drawing 3 is a figure showing the data configuration of the work execution information table 24. Each entry of the work execution information table 24 has application ID69, work ID70, the operation name 71, and the taking over information 72. Application ID65 and work ID70 of application ID69 are the same as that of present work ID66. The operation name 71 is a work name corresponding to work ID70. The taking over information 72 is information which shows the result of having performed operating AP 32 and 42 which corresponds about corresponding work. When work is

canceled without performing operating AP 32 and 42, the information which shows an operating AP nonfulfilment as the taking over information 72 is stored.

[0019]Drawing 4 is a figure showing the data configuration of the starting AP table 25. Each entry of the starting AP table 25 has the operation name 74 and the starting application name 75. The operation name 74 is the same as the operation name 71. The starting application name 75 is an identifier of operating AP 32 and 42 started about corresponding work.

[0020]Drawing 5 is a figure explaining the relation of activity 61, work 62, and operating AP63. This example shows the case where one work is done about one activity. Correspondence of operating AP63 started about each work 62 is shown.

[0021]Drawing 6 A and drawing 6 B are the workflow server 10 until it performs operating AP 32 and 42 corresponding to work and registers the executed result as taking over information, the database server 20 and the AP server 30, and a flow chart that shows the flow of processing of 40. A judgment of that the workflow execution control part 11 is the work which should receive this demand via the demand accepting part 15 (Step 81), and that work should perform if the client 60 specifies application name 64 and present work ID66 and transmits an execution demand of work will call AP start control part 12. AP start control part 12 acquires application ID65 corresponding to application name 64 and present work ID66 specified with reference to the workflow management table 14, and all the last preceding work ID67 (Step 82). Next, AP start control part 12 calls DB access part 22 via the object communication part 13, the network 50, and the object communication part 21, An application name acquisition request is transmitted with application ID65 acquired, present work ID66, and all the preceding work ID67 (Step 83).

[0022]DB access part 22 of the database server 20, This information acquisition request is received (Step 84), and all the operation names 71 and taking over information 72 that it corresponds with reference to the work execution information table 24 via DBMS23 from the combination of application ID65, present work ID66 or application ID65, and preceding work ID67 are acquired (Step 85). However, about present work ID66, only the operation name 71 is acquirable. Here, all the preceding work to the present work was completed, and the taking over information 72 considers finishing [storing]. Next, DB access part 22 refers to the starting AP table 25 via DBMS23, The starting application name 75 applicable to the operation name 74 corresponding to present work ID66 is acquired (Step 86), The application name 64, each taking over information 72 corresponding to preceding work ID67 and the application name 64, and the starting application name 75 corresponding to present work ID66 are transmitted to the workflow server 10 (Step 87). AP start control part 12 receives these information (Step 88).

[0023]It moves to drawing 6 B and it is judged whether AP start control part 12 starts operating AP of the present work which had the demand from the taking over

information on the received preceding work (Step 91). The conditions which start operating AP from taking over information are described in AP start control part 12 as a rule, or are set up on memory storage. In judging with starting operating AP (step 92YES), it transmits a processing demand to the AP servers 30 and 40 applicable via the object communication part 13 and the network 50 with the identifier of the client 60 (Step 94). This processing demand is received (Step 95), operating AP32 or 42 communicates with the client 60 which received the notice, and the AP server 30 or 40 performs processing (Step 96). Next, operating AP32 or 42 transmits an executed result to the workflow server 10 (Step 97). AP start control part 12 receives this executed result, and generates taking over information based on an executed result (Step 98). In not starting operating AP (step 92NO), the taking over information which shows an operating AP nonfulfilment is generated (Step 93), and it goes to Step 99.

[0024]Next, AP start control part 12 makes the generated taking over information correspond with application ID69 and work ID70, and transmits to the database server 20 (Step 99). DB access part 22 of the database server 20 receives this taking over information, updates the taking over information 72 on an entry that the work execution information table 24 corresponds (Step 100), and notifies an updating settled to the workflow server 10 (Step 101). AP start control part 12 receives this notice, and transmits the message which shows the nonfulfilment of the end of work, or work to the client 60 via the workflow execution control part 11 and the demand accepting part 15 (Step 102).

[0025]In the above-mentioned embodiment, when all the work preceded with the work which it is on a business process is completed, it shall not be concerned how as a result of the work, but shall notify to the client 60 which should do at least one work which the workflow execution control part 11 follows. Therefore, the work in which the client 60 carried out the execution demand serves as execution needlessness, and the client 60 can receive the message of a nonfulfilment. It may opt for the work which the workflow execution control part 11 performs the above-mentioned step 82 - Step 93 and Step 99 - Step 101 about at least one work which follows, and does next by the result in the stage of opting for the work done next on a business process.

[0026]The procedure which updates the starting AP table 25 below is explained. The demand accepting part 15 of the workflow server 10 sends correspondence of the operation name 74 received from the client 60, and the starting application name 75 to DB access part 22 of the database server 20, when the update request of the starting AP table 25 is received from an operations manager's client 60. DB access part 22 updates an applicable entry with reference to the starting AP table 25.

[0027]Correspondence with an operation name and job application can be changed without changing the definition statement of a business process definition, since the starting application name was made to become independent of a business process definition according to the above-mentioned embodiment. Therefore, an operation

name is left as it is and correspondence with an operation name and job application can be changed to change job application temporarily.

[0028]Since it changes to change at the time of ******, the processing result, i.e., the taking over information, on the job application which supports the work, the work contents of the work preceded on a business process can cancel the work which follows by it to it, or can make it choose and perform one from the inside of two or more following work.

[0029]Although the workflow server 10 and the database server 20 were separated as another server in the above-mentioned embodiment, this invention can be performed even if it unifies the workflow server 10 and the database server 20 to the same server. In that case, the workflow management work execution information table [starting AP] 14, 24, and 25 will be connected to the same server.

[0030]

[Effect of the Invention]As explained above, according to this invention, since it decided to make correspondence with the job application which supports work and its work become independent of a business process definition, and to set it up on a table as data, change of the job application performed with work becomes easy. Since the executed result of the job application performed with the work to precede is saved as taking over information, the job application accompanying following work can be dynamically started using the taking over information on preceding work.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a lineblock diagram of the work flow system of an embodiment.

[Drawing 2]It is a figure showing the data configuration of the workflow management table 14 of an embodiment.

[Drawing 3]It is a figure showing the data configuration of the work execution information table 24 of an embodiment.

[Drawing 4]It is a figure showing the data configuration of the starting AP table 25 of an embodiment.

[Drawing 5]It is a figure explaining the relation between an activity, work, and operating AP.

[Drawing 6 A] It is a flow chart which shows the flow of processing of an embodiment.

[Drawing 6 B] It is a flow chart (continuation) which shows the flow of processing of an embodiment.

[Description of Notations]

10 [-- A work execution information table 25 / -- A starting application table, 30, 40